GIRO conference October 2011
Henry Johnson, Jerome Kirk, Karen Seidel, Matt Gold – Lloyd’s

Workshop C8
- Lloyd’s Update
Agenda

• Three speakers today (plus me)
  – Matt Gold
  – Karen Seidel
  – Jerome Kirk

• Solvency II update
  – Central workstream
    – Scope, Governance and change, ORSA, link to syndicate models
  – Actuarial function
  – Syndicate workstream

• BAU update
  – Current issue & Interim results
  – Year End process
Lloyd’s Solvency 2 programme is on track and progressing within published timescales

- Syndicate dry run process is on schedule
  - Majority of agents meeting the majority of deadlines
  - Close monitoring of Red and Pink agents continues
- Key syndicate deliverables are crucial for the Lloyd’s Internal Model (LIM) development
  - First full calibrated run of LIM to calculate a robust SCR
  - Key for our evidencing of the internal model requirements
  - Working towards an end April submission to the FSA
    - FSA has commenced their pre-application reviews of the LIM
Our model includes or supports our key solvency and capital activities.
We have set out how the LIM will be governed ...

Franchise Board

FB LIM Sub-Group

ERC

LIM Operating Board

LIM Manager

LIM operations

LIM Change Board

Qualitative Standards Management

Data Standards Management

Central Fund (LIM CCK, PARM)

Syndicate Capital (ICP)

Catastrophe Risk Management (LCM)

Investment Risk Management (LIRM)

Syndicate Review

Operational Risk

LIM IT and Systems
… and how our Change process will operate …

<table>
<thead>
<tr>
<th>Change Process</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model approval</strong></td>
</tr>
<tr>
<td>FSA</td>
</tr>
<tr>
<td><strong>Change approval</strong></td>
</tr>
<tr>
<td>Franchise Board</td>
</tr>
<tr>
<td>ERC</td>
</tr>
<tr>
<td><strong>Change Decision</strong></td>
</tr>
<tr>
<td>LIM Operating Board</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Change Assessment</strong></td>
</tr>
<tr>
<td>Qualitative Team</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>LIM Change Board</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Change Initiation</strong></td>
</tr>
<tr>
<td>LIM Component Teams</td>
</tr>
<tr>
<td>Data Standards Management</td>
</tr>
<tr>
<td>LIM IT and Systems</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

© 2010 The Actuarial Profession • www.actuaries.org.uk
... and how the LIM is integrated within our ORSA process

ORSA Process

- Lloyd’s strategy
  - Definition of strategic goals and objectives

- Solvency assessment
  - Assessing the adequacy of member and central assets against requirements

- Capital setting
  - Setting member and central regulatory and economic capital requirements

- Risk appetite
  - Setting risk appetite and tolerances

- Risk management and monitoring
  - Risk governance
  - Reporting and MI

LIM
- Model tests, inc. use and validation
# LIM Supports our risk and capital framework

<table>
<thead>
<tr>
<th>ORSA element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lloyd’s strategy</td>
<td>- LIM supports our key activities to ensure a sound capital understanding and allows Lloyd’s to demonstrate capital advantages</td>
</tr>
<tr>
<td>Risk Appetite</td>
<td>- LIM supports the measurement and monitoring of key risk appetite metrics to ensure we know where we are in relation to risk</td>
</tr>
<tr>
<td>Risk Management</td>
<td>- LIM provides further understanding of the key risks we face so we can implement effective risk management tools</td>
</tr>
<tr>
<td>Capital Setting</td>
<td>- LIM supports both member level capital setting and central fund capital assessments in a transparent and robust way</td>
</tr>
<tr>
<td>Solvency Assessment</td>
<td>- LIM provides a robust measurement of the state of the market</td>
</tr>
</tbody>
</table>
Linking the central and syndicate models
LIM High Level Model Structure

- Asset risk and returns from LIRM

Risk Groups
- RG 1
- RG 2
- RG 3
- RG n

Simulate losses
- Simulate Attritional losses
- Catastrophe losses from LCM

Produce syndicate results
- Syndicate results

Allocate to Members
- Member A
- Member B
- Member X

Calculate hit on Central Fund
- Central Fund

Member allocation from MCAT
# LIM CCK - Overview

## Phase A
**Simulate losses**
- Attritional risk drivers
- Dependence between risks
- Preparation for catastrophe risk aggregation with attritional risk
- Syndicate noise

## Phase B
**Claims**
- Attritional and event claims at future time periods
- Reinsurance
- Correlation between attritional and event claims
- Calibration to syndicate stats

## Phase C
**Syndicate level P&L, BS**
- Discounted cash flows
- Risk margin
- SI profit and loss account and balance sheet
- RI credit risk
- Op & Group risk

## Phase D
**Member level P&L, BS**
- Allocation of deficit to members
- Impact of deficit on members’ FAL and callable layer
- SI balance sheet specific to central fund assets
- Op & Group risk

## Phase E
**Capital requirement**
- Solvency capital requirement
- Allocation of capital requirement to risk types, members, syndicates

## Metrics
- % chance of market combined loss ratio exceeding 110%
- Asset values
- Yield curves
- Bad debt on assets

## Attritional and Event Claims at Future Time Periods

### Phase A

**Attritional risk**

1. **Nominal cash flows**
2. **Discounted cash flows**

**Event risk (catastrophe risk)**

1. **Attritional claims**
2. **Event claims**
3. **Total claims**

### Phase B

**Nominal cash flows**

### Phase C

**Discounted cash flows**

### Phase D

**Deficit by syndicate**
**Deficit by member**
**Hit on Central Fund**

### Phase E

**Central fund assets**

- 99.9th percentile (Capital requirement)
LIM CCK Input from LCM

• 10,000 event scenarios by Synd-YoA-Event
  – 5 perils
  – Cross syndicate dependency
  – In force view supplied by syndicates
  – Projected forwards and split by Yoa
    (Proposed Year, Proposed Year -1, Proposed Year -2)
• Mapping to risk groups
• Mapping to currencies (USD, ...
Phase B – Syndicate Claims

1. Calculate mean total net loss, for each synd-yoa-rg-ccy
   – Net prem * mkt avg Net ULR * payment pattern
   – Scale to syndicate’s mean total net loss (submitted by synd-yoa)

2. Calc mean attr net claim = mean total net loss - mean cat loss (from LCM)

3. Simulate attr claims
   – Mean attr claim * claim volatility * syndicate noise

4. Simulate total net claim = sim attr claim + sim cat claim, using rank matching

5. Calibrate resulting distribution to mean and 99.5% net insurance loss for each syndicate, by applying a factor to attritional losses
The Actuarial Function at Lloyd’s
Both Lloyd’s and syndicates will require an Actuarial Function

... and both must meet Solvency II standards
Actuarial Function requirements are split into three areas

- Technical Provisions
  - including supporting data
- Underwriting
- Reinsurance

And will require (annual) formal report to the Board
Actuarial Function (1)  
- Technical Provisions

• Requirements are:
  – *coordinate the calculation of technical provisions*;
  – *ensure the appropriateness of the methodologies and underlying models used as well as the assumptions made in the calculation of technical provisions*;
  – *assess the sufficiency and quality of the data used in the calculation of technical provisions*;
  – *compare best estimates against experience*;
  – *inform the administrative, management or supervisory body of the reliability and adequacy of the calculation of technical provisions*;
  – *oversee the calculation of technical provisions in the cases set out in Article 82*;

• Lloyd’s have been testing the requirements over the summer…
... and have seen that the impact is significant ...

Source: y/e 2010 SRD and May 2010 TP submissions
Note: excludes some syndicates so that a like for like comparison can be made
Note: Solvency II TP s include estimated risk margin of 10%
...and need to look closely at the overall impact on the balance sheet

<table>
<thead>
<tr>
<th>ANALYSIS OF TECHNICAL PROVISIONS AND IMPACT ON BALANCE SHEET (£M)</th>
<th>CURRENT BASIS</th>
<th>SOLVENCY II BASIS</th>
<th>CHANGE FROM CURRENT BASIS</th>
<th>%CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET TECHNICAL PROVISIONS</td>
<td>35,422</td>
<td>28,123</td>
<td>(7,299)</td>
<td>(21%)</td>
</tr>
<tr>
<td>NET PREMIUM DEBTORS *</td>
<td>(2,612)</td>
<td>(238)</td>
<td>2,375</td>
<td>(91%)</td>
</tr>
<tr>
<td>DEFERRED ACQUISITION COSTS</td>
<td>(2,348)</td>
<td>-</td>
<td>2,348</td>
<td>(100%)</td>
</tr>
<tr>
<td>NET TECHNICAL PROVISIONS LESS PREMIUM DEBTORS AND DAC</td>
<td>30,462</td>
<td>27,885</td>
<td>(2,577)</td>
<td>(8%)</td>
</tr>
</tbody>
</table>

Note: table above shows liabilities with a positive sign and assets with a negative sign
* Net premium debtors are calculated as insurance and intermediary recoverables less reinsurance accounts payable

- “Real” impact is much lower allowing for asset movements
  - direct impact on Solvency position
  - Need to ensure consistency with any Internal Model
What does this mean for the future of SAOs?

• Can potentially see the future of SAOs going one of three ways:
  – an SAO based on the TP’s for solvency purposes
  – no opinion to be given
  – an opinion on a financial reporting basis and map this across to solvency figures

• Not decided and there are many considerations / interested parties. For example:
  – auditors
  – actuaries / profession
  – Lloyd’s / FSA
  – international regulators
Actuarial Function (2) - Underwriting

- Doc 29/09 outlines: The actuarial function’s opinion on underwriting policy must include the following issues, at a minimum:

  “Sufficiency of premiums to cover future losses.”
  “Considerations regarding inflation, legal risk, changes in mix, anti-selection and adequacy of bonus-malus systems implemented in specific lines of business”

- Lloyd’s Minimum underwriting standard states:

  “Managing agents are expected to have appropriate pricing methodologies which are transparent and consistent for each class of business. This is to ensure that the syndicates they manage generate sufficient premiums in the aggregate to achieve the planned levels of profitability in the business plan approved by Lloyd’s.”
Actuarial Function (3) - Reinsurance

• Doc 29/09 outlines: *The actuarial function’s opinion on underwriting policy must include the following issues, at a minimum:*

  “The adequacy of significant reinsurance arrangements.
  Expected cover under stress scenarios in relation to underwriting policy.
  The adequacy of the calculation of technical provisions arising from reinsurance.”

• Lloyd’s Minimum underwriting standard state: *The managing agent should regularly review its reinsurance arrangements to ensure that:*

  “All significant risks related to the arrangements, and the residual risks borne by the firm, have been identified.
  Appropriate risk mitigation techniques have been applied to manage and control those risks.
  There is full and regular analysis of the effect of the reinsurance plan on its exposure to insurance risk, its underwriting strategy and business plan, and its ability to meet regulatory obligations.
  Specific consideration has been given to the risks associated with the use of shared reinsurance arrangements.”
Syndicate review update
Overall, the syndicate dry run has seen good progress over the summer

- Additional guidance published by Lloyd’s
  - Final Application Pack, Validation Report and ORSA
- Approx 150 model walkthrough sessions held to date
  - joint meetings with FSA in many cases
- Further evidence templates submitted by agents
- Quantitative submissions on technical provisions, QIS5 andSCRs
- And still significant work until the end of the year……..
## SYNDICATE TIMELINE KEY DATES

<table>
<thead>
<tr>
<th>Year</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Overall
- **February 14**: SCI Fair and Post-SCI Fair exercises
- **March 11**: Update long-term cover sheet for all categories
- **May 2**: SCI presentation: scoring sheet
- **JULY 2**: SCI long-term cover sheet
- **JULY 29**: P2D short-term cover sheet
- **AUGUST 3**: P2D short-term cover sheet
- **SEPTEMBER 2**: P2D short-term cover sheet
- **SEPTEMBER 13**: P2D short-term cover sheet
- **SEPTEMBER 20**: P2D short-term cover sheet
- **SEPTEMBER 27**: P2D short-term cover sheet
- **OCTOBER 4**: P2D short-term cover sheet
- **NOVEMBER 18**: P2D short-term cover sheet
- **DECEMBER 1**: P2D short-term cover sheet

### IMSCR
- **February 15**: LCP submission
- **March 18**: LCP submission
- **March 25**: LCP submission
- **May 27**: Evidence template
- **JULY 30**: Evidence template
- **SEPTEMBER 30**: Evidence template

### VBS
- **February 15**: LCP submission
- **March 18**: LCP submission
- **May 27**: Evidence template
- **JULY 30**: Evidence template
- **SEPTEMBER 30**: Evidence template

### TPSF
- **February 15**: TPSF template submission
- **March 18**: TPSF template submission
- **May 22**: Evidence template
- **JULY 29**: Evidence template
- **SEPTEMBER 25**: Evidence template

### MV
- **March 15**: Evidence template
- **July 30**: Evidence template
- **September 30**: Evidence template

### GRMU
- **March 15**: Evidence template
- **July 30**: Evidence template

### RD
- **March 15**: Evidence template
- **July 30**: Evidence template

### DFA
- **March 15**: Evidence template
- **July 30**: Evidence template
...the level of the Standard Formula acts as a reminder of the importance of model approval

Note: excludes some syndicates for illustration purposes
Half Year results
We have reported a loss in the first half which is heavily impacted by…

<table>
<thead>
<tr>
<th>£m</th>
<th>June 2010</th>
<th>June 2011</th>
<th>% chg</th>
<th>Dec 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross written premiums</td>
<td>13,490</td>
<td>13,534</td>
<td>0</td>
<td>22,592</td>
</tr>
<tr>
<td>Net earned premiums</td>
<td>8,285</td>
<td>8,546</td>
<td>3</td>
<td>17,111</td>
</tr>
<tr>
<td>Net incurred claims</td>
<td>(5,403)</td>
<td>(6,697)</td>
<td>24</td>
<td>(10,029)</td>
</tr>
<tr>
<td>Net operating expenses¹</td>
<td>(2,775)</td>
<td>(2,987)</td>
<td>8</td>
<td>(5,939)</td>
</tr>
<tr>
<td>Underwriting result</td>
<td>107</td>
<td>(1,138)</td>
<td>-</td>
<td>1,143</td>
</tr>
<tr>
<td>Investment return²</td>
<td>597</td>
<td>548</td>
<td>(8)</td>
<td>1,258</td>
</tr>
<tr>
<td>Other income / expenses³</td>
<td>(76)</td>
<td>(107)</td>
<td>(42)</td>
<td>(206)</td>
</tr>
<tr>
<td>Profit before tax</td>
<td>628</td>
<td>(697)</td>
<td>-</td>
<td>2,195</td>
</tr>
<tr>
<td>Combined ratio</td>
<td>98.7%</td>
<td>113.3%</td>
<td>93.3%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Lloyd’s pro forma basis, 1) Technical account 2) Return on syndicates’ assets, members’ funds at Lloyd’s and central assets 3) Non-technical account
... unprecedented half year catastrophe claims...

Source: Lloyd’s pro forma basis
… which may not necessarily develop to historic patterns …

**Chilean EQ Development (Gross)**

Source: Lloyd’s QMR & Xchanging data
... elsewhere have seen little movement in other elements of the combined ratio

**COMBINED RATIOS**

<table>
<thead>
<tr>
<th>Year</th>
<th>2011 H1</th>
<th>2010 H1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accident year</td>
<td>86.4%</td>
<td>86.2%</td>
</tr>
<tr>
<td>Major losses</td>
<td>32.4%</td>
<td>17.1%</td>
</tr>
<tr>
<td>Prior year reserve movements</td>
<td>(5.5%)</td>
<td>(4.6%)</td>
</tr>
<tr>
<td>Calendar year</td>
<td>113.3%</td>
<td>98.7%</td>
</tr>
</tbody>
</table>

*Source: Lloyd’s pro forma basis*
Investments in the first half were “modest”

<table>
<thead>
<tr>
<th></th>
<th>H1 07</th>
<th>H1 08</th>
<th>H1 09</th>
<th>H1 10</th>
<th>H1 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR:</td>
<td>2.4%</td>
<td>0.9%</td>
<td>1.6%</td>
<td>1.3%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Note: PTF – Syndicate Premium Trust Funds; FAL - Members’ Funds at Lloyd’s
Source: Lloyd’s pro forma financial statements, 30 June 2011
But solvency coverage and central assets are now at record levels

Source: Society of Lloyd’s financial statements
Current Issues and Year End timetable
Looking forward to year-end

• The catastrophe losses will impact the year-end
• No new reserving “hot topics” have emerged …
• …. but last year’s do remain
  – UK Motor
  – Italian Hospitals
  – Casualty and the cycle
• Monitoring and understanding reserving remains vital
  – at the same time as transitioning to the new regime
Year-end - submission dates - reminder

<table>
<thead>
<tr>
<th>Submission</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Trust Fund SAOs</td>
<td>13 February 2012</td>
</tr>
<tr>
<td>Worldwide SAOs</td>
<td>23 February 2012</td>
</tr>
<tr>
<td>SAO Reports</td>
<td>30 March 2012 or earlier</td>
</tr>
</tbody>
</table>

- Please submit two copies of the SAO report
  - one of which must be a hard copy, electronic copies are encouraged
  - reports to Jerome Kirk, Market Reserving & Capital, G5, Lloyd’s, One Lime Street, EC3M 7HA,
  - submit electronic copies via email to SAOREports@lloyds.com
Wrap up and Questions

- Central and syndicate level Solvency II projects are progressing well
  - And are closely intertwined: BOTH must succeed
  - Many requirements of the Actuarial Function should already exist
- Half Year results reflected the risks taken at Lloyd’s
- Current issues and year end timetable: no major changes